

Chapter Ten

Operation Plan

Street Tree Inventory
Hosp Grove Tree Removal
Hosp Grove Tree Replanting
Community Education
Tree Management Software



City of Carlsbad
Community Forest Management Plan

Chapter 10 - Operation Plan

“A clearly defined action priority list... precedes most successful achievements.”

This chapter includes a discussion of an Operation Plan for priority projects identified during preparation of this CFMP. This Operation Plan is based on priority tasks that are recommended for completion within a relatively short period. The priorities are ranked with the consideration of several factors including time sensitivity, resource condition, City ranking and expected project duration, amongst others. This Chapter provides brief descriptions of the projects and statements on efficient project accomplishment. Estimated costs of project accomplishment are also included. In addition, staff roles are clearly defined for each project. A clearly defined action priority list is included in this CFMP because such a list precedes most successful achievements.

1. Street tree inventory

Tree inventory is an important component to any urban forestry program. Decision-makers must know what they have, i.e., the number and types of trees, their conditions, and their distribution, in order to make sound decisions to achieve forest goals. The inventory provides this critical tree attribute information. The comprehensive information provided in an inventory includes tree species, trunk diameter, height, canopy spread, maintenance needs, insect or pest problems, approximate ages, hazardous situations, and other important decision-making attributes. The last time a tree inventory was conducted in Carlsbad was 1993.

A 100- percent tree inventory should require completion one time. This statement is true if on-going maintenance work is regularly updated within the City's database. Over the course of three- to four- years, City crews visit each tree within the Street Tree Assessment District (STAD). While performing maintenance work on the trees, updates to existing tree attribute information should be conducted. This information can then be entered into tree management software, thus providing a complete update every three- to four years. Because the City currently does not have updated tree information, a tree inventory within the STAD is recommended. The inventory should be initiated within the next two fiscal years and may be completed during one intensive field effort or phased over two or more years. Once updated, the City's tree management software should be updated consistently and systematically. If the current tree database software is not user-friendly and is therefore ignored, the City may research new software that eases data upkeep.

Tree inventory can be performed with knowledgeable in-house crews, but is often more effectively performed by consultants who are hired to complete the task within a given period. In either case, City staff roles would be largely to provide oversight. A main contact, generally the Public Works Manager, or a designated contact such as the Public Works Supervisor, would be responsible for providing field crews with desired information collection parameters. Field crews should include certified arborists experienced in evaluating street trees and operating digital positioning systems. Once the inventory is completed, data would be provided to the database manager. The new database would be integrated to the tree

management software and would supersede previous versions of the database. Previous versions of the database would be maintained in archives for reference purposes.

City staff roles would include the following:

Public Works Manager

Facilitate meetings with consultant or in-house crews
Provide pertinent information and direction

Public Works Supervisor

Oversee consultant or in-house crew inventory
Cooperate with consultant regarding maps and other information needs

In-house Inventory Crew

Conduct inventory and assessment according to accepted methods
Map tree locations according to accepted methods

Consultant – if selected

Provide inventory crew with knowledge assessing street trees
Provide mapping equipment such as GPS or pen-based computers

Estimated costs for performing a complete inventory of the STAD trees is based on a total of 12,000 trees. Costs would be as follows:

STAD public rights-of-way Tree Inventory Cost Estimate

<u>Task</u>	<u>Estimated Cost with Consultant</u>
Pre-field information exchange and preparation	\$ 850
Field tree inventory - GPS	\$30,000
Post-field information processing and database integration	\$ 3,500
Optional software update – user friendly – customized for Carlsbad	\$ 7,500
Administration and project management	\$ 3,000
On-going tree information updates (part of current staff responsibilities)	\$ 0
Total	\$44,850

2. Removal of dead and poor condition trees within Hosp Grove

A substantial number of red and sugar gum eucalyptus trees, approximately 8,800 total, have been lost or are in poor condition and will likely be lost from the Hosp Grove due mainly to infestation by red gum lerp psyllid (psyllid) over the last few years. A total of 1,464 dead trees were removed by the Carlsbad Fire Department between July 17 and September 29, 2000. During our inventory, an additional 5,300 trees were identified as dead. More than 3,500 were identified as seriously declining. These trees will require removal. The tree removal program developed by the Fire Department is efficient, effective, and important to continue. Grant money can be obtained for removal purposes and for replanting of the Grove with species that would introduce diversity, while maintaining the park-like setting currently found

there. Management of the Hosp Grove is discussed in detail in the Hosp Grove Management Plan in Chapter 9.

City staff roles would include the following:

Public Works Manager

Facilitate meetings with Fire Department and Consultant
Provide pertinent information and direction to Fire Department

Public Works Supervisor

Conduct monitoring of tree removal operations
Cooperate with Fire Department for equipment

Fire Marshal

Attend meetings
Provide funding
Provide equipment – chainsaws, etc.

Wild land Hazard Officer

Provide site oversight
Communicate with California Department of Forestry for cooperation, as necessary
Prepare summary report upon completion

Parks Department

Provide chipper equipment and labor

Rainbow California Department of Forestry (CDF) Rainbow Crews

Provide labor for tree felling, waterbar construction, clean-up, etc.

California Department of Forestry – local foresters/urban foresters

Provide funding
Provide cooperation
Provide oversight

Costs associated with tree removal operations can vary substantially, depending on the type of crew employed to perform the removals. Private tree contractors can remove large numbers of trees in a very short period. However, they cost substantially more money than utilizing CDF Rainbow Crews. For example, the 1,474 eucalyptus trees removed during the year 2000 cost nearly \$6,700 using CDF Crews. The estimated private contractor costs for the same number of tree removals would be nearly \$50,000. The CDF Rainbow Crews completed the job in three months. A private contractor could complete the same job in two to three weeks. Because time is not of the essence on this project, it is recommended that CDF Rainbow Crews perform the work and be coordinated closely with the City of Carlsbad Fire Department. The Fire Defense Project completed in 2000 should be used as a template for this project. As such, estimated direct costs to complete dead, dying, hazardous tree removals from Hosp Grove are estimated as follows:

Hosp Grove Tree removal Cost Estimate

<u>Task</u>	<u>Estimated Yearly Cost</u>
Equipment	\$7,500

Logistics	\$2,500
Signs	\$ 250
Labor	\$14,000 *
Total	\$24,250

CDF Rainbow Crews provide labor to remove
2,500 trees per year

3.0 Replacement of removed trees within Hosp Grove

Tree replacement within Hosp Grove should focus on introducing diversity. Unfortunately, the Grove is a good example of poor species and age diversity. Lack of diversity makes the forest vulnerable to devastation resulting from introduced insect pests, such as the psyllid. Because eucalyptus trees were first planted in southern California from seed and not from seedlings (where pests could hitch a ride), they have enjoyed years of success without any of their native pests from Australia. However, due to the increase in world trade, specifically United States imports, eucalyptus pests are introduced to California at a rate of nearly one per year for the last ten years. This trend will undoubtedly continue. As such, it is important to introduce species and age diversity into the Grove.

Following removal of the approximately 8,800 trees that have been lost or are in poor condition and will likely be lost, there will be approximately 5,000 trees remaining in the Grove. The remaining trees were the trees that were in the best condition at the time of sampling and were vigorous enough to withstand repeated attacks by the lerp psyllid. These trees should be monitored for future infestations and be removed should they be lost. The remaining trees will be predominately of two species, *Eucalyptus camaldulensis* and *E. cladocalyx*, both species are vulnerable to attacks by psylla, borers, tortoise shell beetle, and possibly new pests that establish in the coming years.

There will be many available planting sites once the 9,000 dead and dying trees are removed. Replanting these newly available areas should proceed immediately following removals. Recommended replacement species are presented in Chapter 9, Hosp Grove Management Plan.

Fire hazard – open areas with no canopy cover will be subject to native vegetation establishment. These areas should be mulched and weed control provided. Tree planting should be accomplished over the next fifteen years. Not all 9,000 trees would be replaced. Because inclusion of wider spreading canopy trees is recommended, fewer trees would be required. Given the 74-acre size of the Grove, and increasing the average on-center spacing to twenty feet, it is recommended that approximately 10,000 *total* trees comprise the Grove (versus the estimated total of 16,000 trees that the Grove previously included). Including the 5,000 remaining eucalyptus, an additional 5,000 to 6,000 trees should be planted. This will provide age diversity to compliment the species diversity. As such, approximately 400 trees would be planted per year throughout the Grove. To introduce even more age diversity, a combination of seedlings, 1-gallon, 5-gallon, and 15-gallon trees can be planted (where irrigation is possible). These trees would likely require supplemental irrigation for up to five years following planting and even longer if drought years follow the establishment period. Where irrigation is not available or cannot be efficiently installed, other means of irrigation including hand watering may be utilized. Areas that cannot be provided irrigation should be left to regenerate naturally over time.

A staff person would need to be dedicated to the irrigation, monitoring, and oversight of the tree replacement program. Funding for staffing and a vehicle designated for Hosp Grove restoration would require procurement. City staff roles would include the following:

Public Works Manager

Provide oversight and coordination with cooperating agencies.
Provide oversight for tree species selection and planting
Provide funding

Public Works Supervisor

Provide monitoring of planted trees and irrigation

CDF Rainbow Crew

Provide tree planting and irrigation installation labor

Costs associated with planting trees will be proportional to the number of trees planted. Providing some wide-spreading canopy trees such as native oak trees will reduce the number of trees required. As such costs are as follows:

Tree Replacement Planting Estimated Costs

<u>Tasks</u>	<u>Estimated Yearly Cost</u>
Planning and logistics	\$750
Plant material/amendments	\$10,000 - \$15,000 ⁽¹⁾
Planting labor	\$8,000 - \$12,000 ⁽²⁾
Irrigation	\$8,000 - 12,500 + one time water meter (\$10,000)
Monitoring	\$6,000 - 10,000/ ⁽³⁾
Total	\$32,750 to \$50,250/yr

⁽¹⁾Utilizing 100 each of 15-gallon and 1-gallon, and 200 5-gallon trees

⁽²⁾Utilizing Contractor

⁽³⁾Utilizing City personnel

Funding Sources - Grants and Foundations

There are numerous opportunities available for cash donations from various non-profit groups, foundations, corporations, and government agencies. Obtaining these funds will require diligent efforts to locate, make contact, persuade and follow-up. One person should be assigned this task; or it could be contracted out to a private firm. Good sources to locate potential funders are: the internet, other colleges and municipalities with similar past projects, Funding Advantage and other such journals, foundation compendiums (available at most libraries), California/Global ReLeaf and corporations with a typically negative environmental image (e.g., chemical, oil, mining). Also, by combining the Grove Improvement Project with another project or changing the emphasis slightly, funds that are targeted for education, wildlife, minority job training, art appreciation, small business promotion, etc. can also be used. Be creative, persuasive and flexible.

Other Funding Sources

In addition to the general budget and grants, other sources of cash contribution and in-kind services are available. Some suggestions are listed below. Creativity in finding ways to improve the Grove while meeting the needs/goals of other groups is essential.

Special project and endowment funds

Local residents and local businesses may contribute toward Grove restoration and improvement. For example, contributors for special rehabilitation can be commemorated with a plaque at the site or in the local paper.

Other City projects

Whenever possible, Grove restoration funds should continue to be built into all City construction projects that are located near the Grove.

Donated labor

The City should organize volunteer projects for fund-raising, tree planting, hand-watering, spreading mulch, and inspections to be performed at little to minimal cost. Although organizing, training and supervising volunteer labor can often be a difficult task, the effort is usually rewarding. Moreover, grant agencies and foundations typically like to see the public involved in contributing sweat-equity. In addition to students, some sources for donated labor include: County of San Diego Probation Department (\$300/15 person crew/day), San Diego People for Trees, and Urban Corp of San Diego.

Donated materials

Wholesale tree nurseries and irrigation equipment suppliers (e.g. Rainbird) sometimes are willing to donate a portion of the material needed in exchange for publicity and recognition.

4.0 Public Education and Public Relations Program

Public education involves many facets. We've discussed some of the ideas that should be implemented in Chapter 2. Staff roles and costs for these programs are provided below.

City staff roles would include the following:

Public Works Manager

Provide funding

Provide training

Conduct and/or attend tree-related functions

Provide press releases

Parks/Tree Supervisor

Interface with public

Attend tree-related functions

Provide seminars/presentations for local groups

Consultant

Provide professional arboricultural services to represent the City at neighborhood groups, conventions, and seminars, as necessary

Public Education Estimated Costs

<u>Task</u>	<u>Cost Estimate</u>
Marketing	\$0*
Materials	\$3,000 - \$5,000
Attendance at events	\$0*
Consultant	\$120/hour, as needed
Miscellaneous expenses	<u>\$1,500 - \$3,000</u>
Total	\$4,500 to \$8,000*

*Yearly costs, depend on expenses associated with City staff salaries for marketing and attendance at educational events. Consultants may or may not be retained to provide assistance with public education. As such, consulting fees cannot be estimated at this time.